

Patent Application

For

Body Board

Inventor:

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Related Field

[001] The present invention relates to a body board, or sports board, having protective layers heat-laminated onto the surfaces of the board so as to protect the board from corrosion and to provide decoration.

Art Background

[002] Body boards have become a popular recreational device for individuals to glide on a water or snow surface. Body boards, also known as sports boards, probably had their roots in conventional surfboards, although body boards are shorter in length and lighter in weight because of the material used. Body boards are also more flexible so that a user can maneuver the board while using the board in water, or on snow.

[003] One conventional body board has been described in a US Patent, issued to Yeh, No. 6,106,345 ('345 Patent). The disclosure of the '345 Patent is incorporated by reference as if fully set forth herein. The board according to the '345 Patent has an expanded polyethylene ("PE") core with a protection layer heat-laminated around the outside of the board. The protection layer also has ultraviolet inhibitor and anti-oxidant additives, in order to protect the protection layer fresh for a long time. In addition to providing protection to the board, the protection layer can be made into three separate strips of different colors and the three strips are heat-laminated on the top of the board. Such coloring strips allow the board to have color variations in its exterior. However, this approach provides only a way to add limited color variations to the board.

[004] Another body board is described in US Patent Publication, No. US

2002/0167136 by Lehr et al., where a solid sheet skin is laminated directly to the expanded foam core without using any adhesive layer in-between. However, such boards do not seem to provide any improved ways to decorate the exterior of the boards, other than still relying on the conventional screen-printing technique, which tend to fade in the sun after repeated usage.

[005] It is therefore desirable to provide a new and improved sports or body board which is designed to protect the board from corrosion on a snow or water surface.

[006] It is also desirable to provide a new body board that can be made more aesthetically pleasing and attractive to the would-be buyers. The boards effectively become a symbol of the user's identity and individuality.

[007] It is further desirable to provide a new body board that protects its graphics and designs from the outside environment.

Summary of the Present Invention

[008] A body board, or sports board, for recreational activities on snow or on water is disclosed. The board has a foam core, a binding layer laminated on top of one surface of the foam core, a printed graphics layer laminated on top of the binding layer and a clear protection layer laminated on top of the printed graphics layer. On the bottom surface of the board, the foam core can have a bottom foam layer applied thereto and a slick skin applied onto the outside of the bottom foam layer.

[009] Another embodiment of the present invention has a foam core, a deck foam layer applied on top of one surface of the foam core, a binding layer laminated on top of the deck foam layer, a printed graphics layer laminated on top of the binding layer and a clear protection layer laminated on top of the printed graphics layer. On the other surface, i.e. the bottom surface, of the foam core, a bottom foam layer is applied onto bottom surface of the foam core. Another binding layer is laminated onto the bottom foam layer, followed by another printed graphics layer laminated onto the binding layer. Finally, a slick bottom protection layer is applied onto the printed graphics layer.

Brief Description of the Drawings

[010] Figure 1 illustrates an exemplary top surface portion of the body board is illustrated in a partial cross-sectional view.

[011] Figure 2 illustrates an exemplary bottom surface portion of the body board is illustrated in a partial cross-sectional view.

[012] Figures 3 (a) – (b) illustrates the front and back sides of a finished body board for sliding on a snow surface.

[013] Figures 3 (c) – (d) illustrates the front and back sides of another finished body board.

Detailed Description of the Preferred Embodiments

[014] A body board, or sports board, for snow or ocean recreational activities is disclosed. Reference is to Figure 1, where a top surface portion of an exemplary body board is illustrated in a partial cross-sectional view. The body board in accordance with the present invention has a foam core 18, a deck foam 16 laminated on top of foam core 18, a binding layer 14 laminated on top of the deck foam 16, a printed graphics layer 12 laminated on top of the binding layer 14, and a generally clear protection layer 10 on top of the printed graphics layer 12.

[015] The foam core 18 can be a type of expanded foam or polyethylene (“PE”) material, having a thickness of about 25 mm. Preferably, the foam core 18 has a density, in the general ranges of 1.9 PCF (pound per cubic feet) and 2.1 PCF. The deck foam 16 preferably has a thickness of about 3 mm, and may have a density of about 6 PCF, such that the deck foam is harder and stiffer than the foam core. However, it should be understood by those skilled in the art that a body board in accordance with the present invention might have only one type of foam, or multiple types of foam at its core.

[016] The binding layer 14, which serves as an adhesive to bond the printed graphics layer 12 to the foam, preferably has a thickness of about 0.3 mm. The printed graphics layer, which can be a printed film material printed by roller, has a thickness of about 0.2 mm. The protection layer 10, which is preferably clear, or transparent, so that the designs on the graphics layer underneath can be seen from the outside, has a thickness of about 0.3 mm. It should be apparent to those skilled in the art that the thickness of each layer may be modified without departing from the scope and spirit of the present invention. Additionally, the clear protection layer 10 may have a rough or serrated surface to prevent the user from slipping, and to provide a better grip.

[017] It should be pointed out that a graphics layer may be printed on a film by running the film consecutively through a set of rollers, with each roller adding a

particular color for the design. For example, to print a 4-color graphics film, at least 4 rollers are needed. It should be apparent to those skilled in the art that printing a multi-color design onto a film is similar to printing a multi-color design on fabric, since the same printing machines can generally be used on different materials.

[018] Additionally, the graphics layer (film) may be heat laminated or glued onto the foam board, which itself may be PE (polyethylene) foam, PVC (polyvinyl chloride) foam, EVA (ethylene vinyl acetate) foam, PP (polypropylene) foam, or the combination thereof. As can be appreciated by those skilled in the art, a composite or combination foam can be made by laminating or gluing different kinds of foam materials together. Additionally, some boards are made by “expanding” the material into shape, such as those commonly known as EVA body board or EPS (expanded polystyrene) body board.

[019] Reference is to Figure 2, where a bottom surface portion of the exemplary body board is illustrated in a partial cross-sectional view. The body board in accordance with the present invention has a foam core 28, a bottom foam 26 laminated on the outside surface of foam core 28, a binding layer 24 laminated on the outside surface of the bottom foam 26, a printed graphics layer 22 on the outside surface of the binding layer 24 and a generally clear protection layer 20 on the outside surface of the printed graphics layer 22.

[020] The bottom foam 26, which is also an optional layer as in the case of the deck foam 16, can have a preferred density of about 6 PCF and a preferred thickness of about 3 mm. The binding layer 24, which also serves as an adhesive to bond the printed graphics layer 22 to the foam, has a preferred thickness of about 0.3 mm. The protection layer 20 for the bottom surface of the board is preferably a slick PVC layer so that it can allow the board to slide on the snow surface. It may be a HDPE slick skin of about 0.5 mm.

[021] Figures 3 (a) and (b) illustrate the front and back sides of an exemplary finished body board for sliding on a snow surface in accordance with the present invention. Figures 3 (c) and (d) illustrate the front and back sides of another exemplary finished body board for sliding on a snow surface. The top surface allows the underlying printed graphics layer to show through, thus decorating the board with eye-catching designs. The bottom layer, which also has a printed graphics layer underneath, provides the sliding surface. As can be appreciated, the body board in accordance with the present invention provides a much more eye-catching and stylish body board than the

conventional boards.

[022] It should be clear to those skilled in the art that further embodiments may be made without departing from the scope and spirit of the present invention.